

AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 10, line 18 as follows:

If a PBS prism is employed, leak light from the prism contains the same polarized component as in the direction of the transmission axis of the polarizing plate and thus it is impossible to prevent light leakage completely even when a polarizing film (analyzer) is placed between the projection lens and the reflection liquid crystal panel. On the other hand, when the reflection polarizing plate  $\pm 10^\circ$  is employed, light leakage often occurs due to a low contrast ratio of the plate  $\pm 10^\circ$ ; therefore, the use of the auxiliary polarizer 90 and the auxiliary analyzer 120 prevents most of light leakage, leading to a higher contrast.

Please amend the table on page 18, lines 9-18 as follows:

TABLE 1

(in degrees)

Sample No.	Panel polarization axis angle	Polarizer axis adjustment angle	Analyzer axis adjustment angle
Sample 1	5.3	3.8	7.5
Sample [[1]] 2	5.4	3.8	7.6
Sample 3	2.4	1.7	3.4
Sample 4	4.1	2.9	5.8
Sample 5	4.1	2.9	5.8
Sample 6	2.8	2.0	4.0
Average	4.0	2.8	5.7
Standard deviation $\Sigma$	1.2	0.9	1.7
$6\Sigma$	7.4	5.3	10.5

Please amend the paragraph beginning at page 28, line 22 as follows:

Therefore, for the sake of balancing, the polarization converter (not shown) in the rod lens 3, auxiliary polarizers 91, 92, 93, auxiliary analyzers 121, 122, 123, and reflection polarizing plates 101, 102, 103 should meet the following relation,

in the structure according to this embodiment:

$$A^*B^*C = (0.5-5)^*D^*E, \text{ and}$$

in the structure where reflected rays from the reflection liquid crystal panels 111, 112, 113 pass through the reflection polarizing plates 101, 102, 103 before reaching the projection lens 15:

$$A^*B^*C - (0.5-5)^*\underline{E}^*D^*E.$$

Please amend the paragraph beginning at page 29, line 12 as follows:

FIG. 3A shows a method of measuring the contrast ratio of a polarization converter. As shown in FIG. 3A, a measuring light source 50 emits light. Due to an aperture behind the light source 50, the divergence of the beam which reaches the object to be measured is expressed as nearly F20 and the beam is non-polarized (random polarized). Located after the light source are the polarization converter 25 in the rod lens 3, a measuring polarizing plate 51 (desirably with the highest possible degree of polarization) and a measuring light receiver 52. The light coming from the light source 50 passes through the polarization converter 25 in the rod lens 3 and the measuring polarizing plate 51 and reaches the measuring light receiver 51 52 where the optical brightness of the transmitted light is measured. The transmittance of the object can ~~me~~ be calculated using "reference measurement," a measuring process where the brightness is measured without the object (polarization converter 25 in the rod lens 3). The transmittance of the polarization converter 3 (25) is calculated using the following formula:

Transmittance of the polarization converter 25 = (brightness by measurement with the object) /  
(brightness by reference measurement) / 2

Please amend the paragraph beginning at page 37, line 21 as follows:

As shown in FIG. 5, the reflection polarizing plate for R 101, the reflection polarizing plate for B 103, the reflection liquid crystal panel for R 111 and the reflection liquid crystal panel for B 113 are inclined. This arrangement prevents interference which might be caused by too small spacing between the projection lens 15 and the reflection liquid crystal panel for R 111 or the reflection liquid crystal panel for B 113 in the most compact design. Also the incidence angle of optical axis light rays impinging on components after the auxiliary analyzer for R 121 and the auxiliary analyzer for B 123 can be 0 degree. The reason for this is explained next referring to FIG. 6 and FIG. 7. FIG. 6 and FIG. 7 show, in enlarged form, the cross dichroic prism 14 and the reflection liquid crystal panel for B 113 and their vicinities which are shown in FIG. 2 and FIG. 5, respectively. Referring to FIG. 6 and FIG. 7, 16 represents an incoming beam to the reflection liquid crystal panel 113; 17 an outgoing beam reflected by the reflection liquid crystal panel 113; 18 the center of rotation of the reflection liquid crystal panel 113; 19 the back focus of the projection lens 15 (the distance from the projection lens 15, the nearest lens to the cross dichroic mirror 14, to the reflection liquid crystal panel) which coincides with the optical axis. Numeral 20 represents the shortest physical distance between the projection lens 15 and the reflection liquid crystal panel 113. As shown in FIG. 7, the reflection liquid crystal panel for B 113 is inclined as compared with the position of the same panel in FIG. 6 so that it is inclined approx. 5 degrees with respect to the center of rotation 18 while its distance from the center of rotation 18 is maintained. With the arrangement of FIG. 7, the shortest physical distance 20 between the projection lens 15 and the reflection liquid

crystal panel for B 113 can be increased without an increase in the optical distance from the projection lens 15 to the reflection liquid crystal panel for B 113, namely the back focus 19. Hence, with the arrangement of FIG. 7, when the size of the optical system is to be minimized, the shortest physical distance 20 between the projection lens 15 and the reflection liquid crystal panel for B 113 can be increased while interference by the structural components holding these components is prevented.

Please amend the paragraph beginning at page 40, line 24 as follows:

Unlike those shown in FIG. 2, the reflection liquid crystal panels ~~44~~ 111, 112, 113 shown in FIG. 8 are parallel to the three incidence planes of the cross dichroic prism 14 respectively. This embodiment is designed so that light from the light source 1 is reflected by the reflection polarizing plates 101, 102, 103 and cast on the reflection liquid crystal panels 111, 112, 113. Hence, the working planes (hatched) of the reflection polarizing plates 101, 102, 103 are on the side of the incidence planes of the auxiliary polarizers 91, 92, 93.

Please amend the paragraph beginning on page 45, line 20 as follows:

Next, referring to FIG. 10, an explanation is given below of how a reflection type liquid crystal projector optical unit according to the present invention works for white image display. In FIG. 10, rays coming from the light source 1 are transmitted through the two multi-lenses 24, then through polarization converter 25 and bent approx. ~~420~~ 60 degrees by the white reflection mirror 5 before reaching the B-transmission RG-reflection dichroic mirror 6 where RG rays are reflected and bent approx. 60 degrees and B rays are transmitted. The reflected RG rays reach

the R-transmission G-reflection dichroic mirror 7 where G rays are reflected and bent 90 degrees and R rays are transmitted. The B rays are bent approx. ~~60~~ 120 degrees by the B-reflection mirror 8. Then, the R, G, and B rays enter the auxiliary polarizer for R 91, the auxiliary polarizer for G 92, and the auxiliary polarizer for B 93, respectively. The remaining sequence is the same as that of the embodiment of FIG. 2 and its explanation is omitted.

Please amend the paragraph beginning at page 58, line 3 as follows:

In FIG. 16, 1 represents a light source; 2 the optical axis of a reflection liquid crystal projector optical unit; 24 an integrator consisting of two multi-lenses; 25 a polarization converter consisting of a PBS array and a half-wave plate; and 26 a lens which projects the shape of the lens cells (not shown) of the light source side multi-lens of the integrator 24 on the reflection liquid crystal panels 111, 112, 113. Numeral 5 represents a white reflection mirror; 90 an auxiliary polarizer for white; and 100 a reflection ~~polarizer~~ polarizing plate for white. Numeral 29 represents a Philips prism; 111, 112, and 113 a reflection liquid crystal panel for R, a reflection liquid crystal panel for G, and a reflection liquid crystal panel for B; 120 an auxiliary analyzer for white, respectively; 30 a quarter-wave plate for white; and 15 a projection lens.